

PATHWAY ANALYSIS - Riverfront Park and Restoration

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1	RPR	Riverfront Commemorative Park (CU Permit)	p. 27	Proposed Riverfront Park	p. 27 I. Effects on off-street parking: the proposed park plan is parking neutral. p. 39 However, a 28% increase in impervious surface area (resulting from paving gravel areas and plaza construction) will increase runoff to the Willamette River. This runoff will be collected, cleaned, and piped directly to the river. During most storm events, stormwater from the Riverfront area will reach the river before increased runoff from upstream sources peaks in Corvallis.	1 - The project is expected to increase impervious surfaces by 28%. Additional runoff from new impervious surfaces will be intercepted, treated to reduce 80% of sediments, and released into the river before peak in hydrograph; therefore, impacts to habitat are minimal. Increased temperature of stormwater will still impact river habitat. 10(a) - Negative: Impervious surfaces create runoff that impacts habitat. 11(b) - Point: The project would be established along the Riverfront within the project area. 12(c) - Chronic: The project has a long life expectancy. 13(d) - Low: Stormwater treatment would mitigate impact to habitat.	D/Q	Direct	Impervious Surfaces	NEG	0	0	0	0	0
2	RPR	Riverfront Commemorative Park (CU Permit)	p. 35	Proposed Riverfront Park	p. 36 "Figure 8 identifies debris and invasive vegetation pockets that will be removed from the riverbank to allow for construction of sheer pile walls and replanting with native vegetation."	1 - Construction of sheer pile walls and reticulated micro-pile walls is proposed to stabilize the riverbank. The stabilization project would reduce riverbank erosion by preventing slumping of soil and helping to retain the existing riverbank during flood events. Locally, the project would help stabilize the riverbank and may benefit habitat, but the project also may alter natural hydraulic processes at work and result in secondary negative impacts downstream. 10(a) - Neutral: Cumulative impacts are unknown. 11(b) - Point: The stabilization project would be established along the Riverfront within the project area. 12(c) - Chronic: The project has a long life expectancy. 13(d) - Low: Hydrologic impacts are unknown. Local benefit to habitat would be marginal.	D/Q	Direct	Channelization	NEG	0	0	0	0	0
3	RPR	Riverfront Commemorative Park (CU Permit)	p. 29	Proposed Riverfront Park	p. 29 b. Maintain or improve air and water quality within the Greenway. Riverbank protection will provide an effective natural buffer between the proposed active park area and the Willamette River... p. 35 Steeply-sloped and vegetated riverbank will be retained as a natural buffer.	1 - Riparian vegetation helps minimize the impact of urbanization to the riparian environment. Riparian vegetation benefits water quality and riverbed habitat by filtering out sediment and other contaminants and preventing streambank erosion. Maintaining vegetative cover also helps shade stream habitat and stabilize water temperature regimes. 10(a) - Positive: The proposal would improve water quality and benefit habitat. 11(b) - Point: The riparian buffer would be established along the Riverfront within the project area. 12(c) - Chronic: The buffer has a long life expectancy. 13(d) - Medium: The buffer would reduce sedimentation, remove contaminants, and reduce streambank erosion, but most runoff would be intercepted by the stormwater management system.	C/N	Direct	Buffers	POS	1	3	2	6	6

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4	RPR	Riverfront Commemorative Park (CU Permit)	p. 27	Proposed Riverfront Park	p. 27 j. Effects on air and water quality Park plan includes a stormwater system that will remove 80% of sediment by removing oils and suspended solids (see Riverbank Restoration Plan). There should be no impact to air quality because the project is parking neutral. p. 33 LDC 3.30.40.b. Significant fish and wildlife habitats shall be protected (see Riverbank Restoration Plan). Proposed fencing at the top-of-bank will restrict access...and will protect natural resource values. New lighting will be shielded to reduce light and glare impacts on fish habitat.	1 - Urban land uses are the primary sources of contaminants along the City's Riverfront. Urban contaminants and sediments are conveyed into the Willamette River by stormwater runoff. Urban contaminants include petroleum-based fuels and oils released from operation, maintenance, and repairs to vehicles and equipment, and a wide assortment of other organic and chemical contaminants. The proposed stormwater treatment system would intercept stormwater for treatment before release into the river. Improved water quality would benefit river habitat. Fencing prevents streambank erosion. 10(a) - Positive: The proposed system would improve water quality and benefit habitat. 11(b) - Point: The system would be installed only along the Riverfront. 12(c) - Chronic: The system has a long life expectancy. 13(d) - High: The system would reduce sedimentation, remove contaminants, and reduce streambank erosion.	D/Q	Direct	Contaminants	POS	1	3	3	7	7
5	RPR	Riverfront Commemorative Park (CU Permit)	p. 35	Proposed Riverfront Park	Erosion during construction is a concern...inlet protection, filter fabric on the riverbank, and silt fencing	1 - Construction activities might create temporary erosion problems. If properly implemented and maintained, the stormwater management measures listed would mitigate any significant impact to habitat. 10(a) - Neutral: The proposed measures would mitigate impacts to habitat. 11(b) - Point: The construction would occur within the project site along the Riverfront. 12(c) - Once: Construction impacts would be temporary. 13(d) - Low: Impacts would be minimized.	D/Q	Direct	Contaminants	NEG	1	1	1	3	3
6	RPR	Riverbank Restoration Plan (Appendix 5)	p. 3	Repair of the riverbank to accelerate ecological recovery	Removal of concrete debris that impedes vegetative recovery	1 - Construction activities might create temporary erosion problems. If properly implemented and maintained, the stormwater management measures listed would mitigate any significant impact to habitat. 10(a) - Neutral: The proposed measures would mitigate impacts to habitat. 11(b) - Point: The construction would occur within the project site along the Riverfront. 12(c) - Once: Construction impacts would be temporary. 13(d) - Low: Impacts would be minimized.	D/Q	Direct	Not Applicable	NTRL	0	0	0	0	0

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7	RPR	Riverbank Restoration Plan (Appendix 5)	p. 4	Repair of the riverbank to accelerate ecological recovery	Removal of oversteeped dump sites	1 - Removal of fill and other material that has been dumped along the riverbank. Fill material may be a source of sediment or other contaminants during flood events. Removal of material is proposed, followed by revegetation, which will minimize erosion. Short-term impacts of removal are minimized. 10(a) - Positive: Removes potential sources of contamination. 11(b) - Point: The stabilization project will be established along the Riverfront within the project area. 12(c) - Chronic: The project has a long life expectancy. 13(d) - Low: Marginal benefit to habitat by removing potential contamination.	D/Q	Direct	Contaminants	POS	1	3	1	5	5
8	RPR	Riverbank Restoration Plan (Appendix 5)	p. 4	Repair of the riverbank to accelerate ecological recovery	Removal of unnecessary riprap that impedes vegetative recovery	1 - Removal of unnecessary riprap along the riverbank. Removal of riprap and lowering of riprap is proposed to permit vegetative recovery. Removal of material that "hardens" the riverbank and re-establishing vegetative cover will restore natural hydraulic processes may result in a slight, temporary increase in erosion but should not result in significant negative impacts to habitat. 10(a) - Neutral: Riprap was recently placed and now will be altered. 11(b) - Point: The stabilization project will be established along the Riverfront within the project area. 12(c) - Once: The alterations will take place only once. 13(d) - Low: Risk of erosion because of removal is slight.	D/Q	Direct	Channelization	NTRL	0	0	0	0	0
9	RPR	Riverbank Restoration Plan (Appendix 5)	p. 5	Repair of the riverbank to accelerate ecological recovery	Additional riprap for toe protection	1 - Placement of additional riprap along the riverbank "hardens" the riverbank. The stabilization project would reduce riverbank erosion by preventing slumping of soil and helping to retain the existing riverbank during flood events. Locally, the project would help stabilize the riverbank and may benefit habitat, but the project also may alter natural hydraulic processes at work and result in secondary negative impacts downstream. 10(a) - Neutral: Riprap was recently placed and now will be altered. 11(b) - Point: The stabilization project will be established along the Riverfront within the project area. 12(c) - Chronic: The riprap bank stabilization would persist for a long time period. 13(d) - Low: Secondary impacts downstream are unknown.	D/Q	Direct	Channelization	NTRL	0	0	0	0	0

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10	RPR	Riverbank Restoration Plan (Appendix 5)	p. 6	Repair of the riverbank to accelerate ecological recovery	Plantings of native trees and shrubs to restore ecological and aesthetic condition	1 - Planting native trees and shrubs is intended to minimize riverbank erosion. Vegetation stabilizes the riverbank, provides shade that helps moderate water temperature, and provides a source of debris that enhances river habitat. Riparian vegetation benefits water quality and riverbed habitat. 10(a) - Positive: Vegetation prevents erosion and enhances river habitat. 11(b) - Point: The stabilization project will be established along the Riverfront within the project area. 12(c) - Chronic: Once established, the vegetation should persist for a long time period. 13(d) - Low: Improvements to habitat will be minor.	D/Q	Direct	Buffers	POS	1	3	1	5	5
11	RPR	Riverbank Restoration Plan (Appendix 5)	p. 8	Repair of the riverbank to accelerate ecological recovery	Repair of the 1996 slump	1 - Repairing the slump involves filling in riprap with subsoil and topsoil and replanting. Planting trees and shrubs will provide shade that helps moderate water temperature and provides a source of debris that enhances river habitat. Riparian vegetation benefits water quality and riverbed habitat. 10(a) - Positive: Vegetation enhances river habitat. 11(b) - Point: The treatment will be site-specific. 12(c) - Chronic: Once established, the vegetation should persist for a long time period. 13(d) - Low: Improvements to habitat will be minor.	D/Q	Direct	Channelization	POS	1	3	1	5	5
12	RPR	Riverbank Restoration Plan (Appendix 5)	p. 8	Repair of the riverbank to accelerate ecological recovery	Removal of blackberry and other invasive species	1 - Removal methods include repeated manual removal and repeated cutting. Following removal, exposed soils will be protected using biodegradable mats, seeding, and mulching. Removal will allow native plant communities to be re-established. 10(a) - Neutral: Removal methods should prevent erosion. Re-establishing native plant communities will benefit habitat. 11(b) - Point: The actions will take place along the Riverfront within the project area. 12(c) - Once: The actions will take place once. 13(d) - Low: Little or no impact to habitat will result.	D/Q	Direct	Buffers	NTRL	0	0	0	0	0
13	RPR	Riverbank Restoration Plan (Appendix 5)	p. 9	Repair of the riverbank to accelerate ecological recovery	Continued control of invasive plants in future years and plantings to establish competitive native vegetation	1 - Removal methods include repeated manual removal and repeated cutting. Following removal, exposed soils will be protected using biodegradable mats, seeding, and mulching. Removal will allow native plant communities to be reestablished. 10(a) - Positive: Removal methods should prevent erosion. Reestablishing native plant communities will benefit habitat. 11(b) - Point: The actions will take place along the Riverfront within the project area. 12(c) - Chronic: The actions are intended to eradicate invasives and prevent their reintroduction. 13(d) - Low: Native plant communities will provide long-term benefits.	D/Q	Direct	Buffers	POS	1	2	1	4	4

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14	RPR	Riverbank Restoration Plan (Appendix 5)	p. 9	Repair of the riverbank to accelerate ecological recovery	Replant native species where bank stabilization has damaged riparian trees or exposed areas of the riverbank	1 - Planting native trees and shrubs is intended to minimize river bank erosion. Vegetation stabilizes the riverbank, provides shade that helps moderate water temperature, and provides a source of debris that enhances river habitat. Riparian vegetation benefits water quality and river bed habitat. 10(a) - Positive: Vegetation prevents erosion and enhances river habitat. 11(b) - Point: The stabilization project will be established along the Riverfront within the project area. 12(c) - Chronic: Once established, the vegetation should persist for a long time period. 13(d) - Low: Minor improvements to habitat will result.	D/Q	Direct	Buffers	POS	1	3	1	5	5
15	RPR	Riverbank Restoration Plan (Appendix 5)	p. 9	Repair of the riverbank to accelerate ecological recovery	Create test plots to determine successful approach for revegetating the riprap	1 - The intent is to fill in riprap with subsoil and topsoil, and replant. Planting trees and shrubs will provide shade that will help moderate water temperature and a source of debris that will enhance river habitat. Riparian vegetation benefits water quality and riverbed habitat. 10(a) - Positive: Vegetation enhances river habitat. 11(b) - Point: The treatment will be site-specific. 12(c) - Chronic: Once established, the vegetation should persist for a long time period. 13(d) - Low: Minor improvements to habitat will result.	D/N	Direct	Buffers	POS	1	3	1	5	5